

# 50 Fighting Back



**D**espite many prevention methods, infectious diseases, from Hansen's disease to tuberculosis, continue to affect people in the U.S. and around the world. What can be done for a person after he or she has caught an infectious disease?



*Penicillium mold produces a chemical that has saved many human lives.*

Diseases caused by microorganisms, such as bacteria and protists, can usually be treated with antibiotics. This is because antibiotics are chemicals that kill living microbes such as bacteria. You may have heard of antibiotics such as penicillin (peh-nuh-SIH-lun) and streptomycin (strep-tuh-MY-sun). You may have even used them yourself. How were antibiotics first discovered? Did scientists design experiments and control variables? What problems did scientists face?

## CHALLENGE



**How was the first antibiotic discovered?**

## PROCEDURE

1. In order to prepare to watch the story on the video, first read Analysis Questions 1–3.
2. Copy the table below into your science notebook to use for notes as you watch the video.

Notes on Penicillin		
	Alexander Fleming	Oxford University team
What scientific discovery was made?		
How was this discovery made?		
What was done as a result of this discovery?		

3. Find out more about antibiotics by watching video segments on the discovery of penicillin.
4. Watch the video segments a second time and take notes on the following questions. Or use Student Sheet 50.1, “Notes on Penicillin,” as a guide.
  - What was the scientific discovery? How was it made?
  - Who made it?
  - What was done as a result of this discovery?

## ANALYSIS



1. Describe the impact of penicillin on society.
2. The “traditional” scientific method includes the following steps:
  - State the problem or question.
  - Propose an explanation, also known as the hypothesis.
  - Collect evidence. (Conduct an experiment.)
  - Analyze data.
  - Draw conclusions and, if necessary, revise and repeat the experiment.

Explain how the work of the following scientists did or did not resemble the traditional scientific method.

- a. Alexander Fleming
  - b. Oxford University team (made up of 19 researchers, including Howard Florey and Ernst Chain)
3. What types of infectious diseases do antibiotics work against? Are there any types of infectious diseases that antibiotics do not work against? Explain.